

TMDL:

Red Run Drain and Bear
Creek, Macomb and Oakland
Counties, Michigan

Effective Date:

**Decision Document for Approval of
The Red Run Drain and Bear Creek TMDL Report**

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA's TMDL regulations should be resolved in favor of the regulations themselves.

15312. Identification of Water body, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the water body as it appears on the State's/Tribe's 303(d) list. The water body should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the water body and specify the link between the pollutant of concern and the water quality standard (see section 2 below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the National Pollutant Discharge Elimination System (NPDES) permits within the water body. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

- (1) the spatial extent of the watershed in which the impaired water body is located;
- (2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
- (3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
- (4) present and future growth trends, if taken into consideration in preparing the TMDL

(e.g., the TMDL could include the design capacity of a wastewater treatment facility); and (5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comment:

Location/Description/Spatial Extent: Red Run Drain (WBID # 061402A) and Bear Creek (WBID # 01402B) are located in southeastern Michigan. Bear Creek is a tributary to Red Run Drain and both are tributaries of the Clinton River located in Oakland and Macomb Counties, Michigan. The Red Run Drain is located in the Clinton River watershed and includes several tributaries. Bear Creek is a tributary to Red Run which Michigan Department of Environmental Quality (MDEQ) has listed as a separate reach.

There are several cities in the Red Run subwatershed, including Warren, Center Line, Madison Heights, Troy and Clawson (Page 3 of the TMDL). The Red Run Drain reach is 6 miles long and extends from the confluence with the Clinton River upstream. Bear Creek is 3 miles long, and extends from the Red Run Drain confluence to Mound Road near Warren, Michigan (Page 1 of the TMDL). The subwatershed is 142 square miles, and is located in Hydrologic Unit Code (HUC) 4090003.

Red Run Drain and Bear Creek were placed on the Michigan 2004 Section 303(d) list due to impairment of recreational uses as indicated by the presence of elevated levels of *E. coli*. Monitoring data collected by the MDEQ in 2004 documented WQS exceedances for *E. coli* at all but one sampling location during the total body contact recreational season of May 1 through October 31. Tables 1-3 of the TMDL shows the *E. coli* monitoring data.

Land Use:

The land use is described in the Source Assessment Section and Table 4 of the TMDL submittal. Both streams are located entirely in urban/developed areas, primarily residential, commercial and industrial.

Problem Identification/Pollutant of Concern:

This TMDL will address the Red Run Drain and Bear Creek impairment from pathogens. As stated in the Red Run Drain and Bear Creek TMDL submittal, the water bodies were placed on the Section 303(d) list due to impairment of recreational uses as indicated by elevated levels of *E. coli* bacteria. This approval document is for two water body segments impaired by *E. coli* for a total of two TMDLs addressing a total of two impairments from the 2004 Michigan 303(d) list.

Source Identification:

Possible sources of *E. coli* include illicit connections to storm sewers, wildlife and/or pet waste, leaking septic or sanitary sewers, Combined Sewer Overflows (CSOs), Sanitary Sewer Overflows (SSOs), the Warren Wastewater Treatment Plant (WWTP), and nonpoint source runoff (Page 3 of the TMDL).

There are 475 NPDES permitted discharges to Red Run Drain or its tributaries in the TMDL reach (Tables 5 and 6, Figure 11 of the TMDL), including 5 individual permits, 219 certificates of

coverage (COCs) under 3 general permits, and 251 notices of coverage under 1 permit-by-rule. Table 7 of the TMDL contains information on each of the general permits and the permit-by-rule. The general permits include the MS4 permittees, the general storm water permittees, and the non-contact cooling water permittees.

The Red Run Drain watershed has one permitted CSO discharge named the Oakland County George W. Kuhn Retention Basin, under Permit #MI0026115. Five overflows occurred during the 2004 recreational season due to rain events. Sampling stations 1, 2, 3, 4, and 5 are downstream of the CSO discharge location (Figure 11 of the TMDL). The exceedances of the *E. coli* WQS noted on August 4, 2004, at sampling stations 1-5 (Figure 2 of the TMDL) could be attributed in part to CSO discharges that occurred August 3 and 4 (Figures 12 and 13 of the TMDL). Although the facility was in compliance with its NPDES permit limits (200 fecal coliform per 100 ml as a monthly geometric mean, and 400 fecal coliform per 100 ml as a 7-day geometric mean), fecal coliform numbers in the CSO discharge were as high as 14,600 per 100 ml on August 3, 2004 (Figure 12 of TMDL). Fecal coliform concentrations are substantially higher than *E. coli* concentrations when the wastewater of concern is sewage (Page 3 of the TMDL). However, MDEQ has determined that if fecal coliform levels are elevated as high as 14,600 per 100 ml, it may be assumed that *E. coli* levels are elevated and exceeding the WQS as well (Page 3 of the TMDL).

The Red Run Drain watershed has one permitted WWTP discharge under Permit #MI0024295, the Warren WWTP, which is a blending facility. The facility was in compliance with its NPDES permit limits for fecal coliform (200 fecal coliform per 100 ml as a monthly geometric mean, and 400 fecal coliform per 100 ml as a 7-day geometric mean at the point of final discharge) for January 2004 through April 2006, with the exception of January 2005, when the 7-day geometric mean was exceeded (474 fecal coliform per 100 ml). Although the 7-day geometric mean and the 30-day geometric mean WQS were almost always met, individual single sample fecal coliform measurements exceeded 200 fecal coliform per 100 ml several times (e.g., fecal coliform numbers were reported to be 1300 per 100 ml on August 4, 2004). The exceedances of the *E. coli* WQS at stations 3, 4, and 5 in Red Run Drain (Figure 11 of the TMDL) could be attributed in part to the Warren WWTP discharges in that same time period (Figure 13 of the TMDL).

The Municipal Separate Storm Sewer System (MS4) permittees (MIG61900), the general storm water permittees (MIS110000 and MIS120006) and the three individual stormwater permits (city of Sterling Heights, city of Warren, and Michigan Department of Transportation (MDOT) - statewide permit) are prohibited from having discharges that may cause or contribute to a violation of WQS. The noncontact cooling water permits (MIG250000) allow for the discharge of only uncontaminated water and are not expected to be a source of *E. coli*. The permits-by-rule (MIR100000) involve earthwork in the TMDL watershed and are not considered a significant source of *E. coli*. There are no Concentrated Animal Feeding Operations in the Red Run Drain and Bear Creek TMDL watersheds.

The City of Center Line has had 11 SSOs to Lorraine Drain, a tributary of Bear Creek, since July 2000. These SSOs are a source of *E. coli* to the watershed. Center Line entered into an Administrative Consent Order with the MDEQ in August 2001, that requires the elimination of the SSOs by September 30, 2009. There has been only one SSO since January 2004.

Illicit discharges are most likely a significant source of *E. coli* in the Red Run Drain watershed. Illicit connections can be a source of *E. coli* during both wet and dry weather. The watershed is entirely within a highly populated urban area. Several illicit connections, including those that drain subdivisions, business parks, public schools, an industrial building, and an apartment complex have been identified in the Schoenherr Relief Drain. Several illicit discharges have also been found in the Bear Creek watershed and are under correction (Page 5 of the TMDL).

Priority Ranking: Michigan does not include separate priority rankings for its waters. However, it prioritizes waters based on its five-year rotating watershed assessment approach.

Future Growth: As stated in the Red Run and Bear Creek TMDL submittal, the watershed is completely enclosed in a highly urbanized area and the expectation is that the area will continue to develop and grow.

EPA finds that the TMDL document submitted by MDEQ satisfies all requirements of this first element.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the water body, the applicable numeric or narrative water quality criterion, and the antidegradation policy. (40 C.F.R. §130.7(c)(1)). EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Comment:

Designated Uses: This TMDL reach has the designated use of total body contact recreational use from May 1 to October 31 (R 323.1100 of the Part 4 rules, WQS, promulgated under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended).

Standards: The standard for *E. coli* is established in Rule 62 of the WQS:

R 323.1062 Microorganisms.

Rule 62. (1) All waters of the state protected for total body contact recreation shall not contain more than 130 *E. coli* per 100 milliliters (ml), as a 30-day geometric mean. Compliance shall be based on the geometric mean of all individual samples taken during five or more sampling events representatively spread over a 30-day period. Each sampling event shall consist of three or more samples taken at representative locations within a defined sampling area. At no time shall the waters of the state protected for total body contact recreation contain more than a maximum of 300 *E. coli* per 100 ml. Compliance shall be based on the geometric mean of three or more samples taken during the same sampling event at representative locations within a defined sampling area.

Sanitary wastewater discharges have an additional target:

Rule 62. (3) Discharges containing treated or untreated human sewage shall not contain more than 200 fecal coliform bacteria per 100 ml, based on the geometric mean of all of five or more samples taken over a 30-day period, nor more than 400 fecal coliform bacteria per 100 ml, based on the geometric mean of all of three or more samples taken during any period of discharge not to exceed seven days. Other indicators of adequate disinfection may be utilized where approved by the Department.

The TMDL submittal also states that “sanitary wastewater discharges are considered in compliance with the WQS of 130 *E. coli* per 100 ml if their National Pollutant Discharge Elimination System (NPDES) permit limit of 200 fecal coliform per 100 ml as a monthly average is met.”

Target: The target is 130 *E. coli*/100ml 30-day geometric mean, 300 *E. coli*/100ml maximum from May 1 to October 31. The target is the water quality standard, for both the geometric mean and the daily maximum portion of the standard. If the numeric standard is met, the river should meet the assigned designated use (R. 323.1062).

EPA finds that the TMDL document submitted by MDEQ satisfies all requirements of this second element.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a water body for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical

process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity. (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

Comment:

Loading Capacity:

MDEQ has determined that the loading capacity for the impaired waterbodies is the water quality standard for *E. coli*; that is, 130 cfu/100 ml (geometric mean of 5 samples equally spaced over a 30 day period) and a daily maximum of 300 cfu/100 ml (TMDL Development Section of the TMDL submittal).

Typically loading capacities are expressed as a mass per time (e.g. pounds per day). For *E. coli*, however, states often use concentration to measure loading capacity rather than mass per time, with concentration being the amount of matter in a given volume. This approach is consistent with EPA's regulations which define "load" as "an amount of matter . . . that is introduced into a receiving water. . . ." (40 CFR §130.2). To establish the loading capacities for the Red Run Drain and Bear Creek, MDEQ used Michigan's WQS for pathogens which has a geometric mean for a 30 day period and a daily geometric mean maximum of an amount of bacteria colonies per 100 milliliters of receiving water. Thus, the loading capacity is expressed as a concentration, i.e. the amount of bacteria colonies per volume of water. A loading capacity is "the greatest amount of loading that a water can receive without violating water quality standards." (40 CFR § 130.2). So, a loading capacity set at the WQS will assure that the water does not violate WQS.

Method for cause-and-effect relationship:

The method used for developing this TMDL is the load duration curve (LDC). An explanation found in the Linkage Analysis Section of the TMDL. First, continuous flow data is required. For this TMDL, the USGS gage on Plum Brook, in the vicinity of Utica (Gage #04163400), was used. The flow data reflect a range of natural occurrences from high flows to low flows. This dataset, combined with *E. coli* water quality data from the sampling stations, is used for developing the load duration curves found in Appendix A of the TMDL. The flow data are transformed to load duration curves by applying water quality criteria values for *E. coli* and appropriate conversion factors. Then the existing monitored water pollutant loads from various types of locations are added to the curve and other conversion factors are applied. In this way it can be determined which locations, under which flow conditions, contribute loads above or below the water quality standard, or target, line. The final step is to determine where reductions need to occur. The data indicate, based on the curves, that exceedances occur both under high flow and low flow conditions. For this TMDL, the loading of pathogens appears to enter the Red Run Drain watershed during all weather conditions (i.e., wet and dry weather events), but the largest exceedances occur primarily during or soon after wet weather events (Tables 1-3, Figures 7-10 of the TMDL). Precipitation data for the two days prior to each MDEQ sampling event were

obtained from a weather station in Hazel Park, Michigan.

As stated above, the data indicate that exceedances of the WQS are observed during wet and dry weather events. MDEQ determined that the *E. coli* WQS exceedances at the most upstream station of Bear Creek [Mound Road (Station 0, Figure 1 of the TMDL)] appear to be influenced by mid to higher flow events (A-1). The more downstream stations at 12-Mile Road and Old 13-Mile Road (Stations 1A and 2A, Figure 1 of the TMDL) experience WQS exceedances during all flow conditions (Appendices A-2 and A-3). With the exceptions of Station 6 on Big Beaver Creek and Stations 5 on Red Run Drain (Figure 1 of the TMDL), *E. coli* WQS exceedances in Red Run Drain and Plum Brook occurred most often under moist to high flow events (Appendices A-4 through A-10 of the TMDL). In Figures 7-10 of the TMDL, the prior two-day precipitation total was graphed along with the daily geometric mean for *E. coli* at the MDEQ 2004 sampling stations. As noted in the Source Assessment Section of the TMDL, exceedances of the *E. coli* WQS during wet weather (and thus high flow), could be partially attributed to discharges from the G.W. Kuhn Retention basin CSO and discharges from the Warren WWTP. Illicit discharges could occur during any range of flows.

Critical Condition:

MDEQ has determined that there is no one critical condition for this TMDL that will assure attainment of WQSs (TMDL Development Section of the TMDL). The LDCs in Appendix A show that exceedances are occurring under all flow regimes, indicating that the impairment is due to a variety of sources and conditions. The TMDL is expressed as a concentration equal to the WQS, thereby ensuring that the WQS will be met under all flow and loading conditions.

EPA finds that the TMDL document submitted by MDEQ satisfies all requirements of this third element.

4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future non-point sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and non-point sources.

Comments:

Because this TMDL is concentration based, the LA is equal to 130 *E. coli* per 100 ml as a monthly geometric mean and 300 *E. coli* per 100 ml as a daily geometric mean. This LA is based on the assumption that all land, regardless of use, will be required to meet the WQS. Therefore, the relative responsibility for achieving the necessary reductions of bacteria and maintaining acceptable conditions will be determined by the amount of land under the jurisdiction of the local unit of government in the watershed. This TMDL reach is located in 20 municipalities and 2 counties (Table 4 of the TMDL). The municipalities making up the largest portion of the watershed are the cities of Warren (24.2 percent), Troy (19.5 percent), and Sterling Heights (18.2 percent).

EPA finds that the TMDL document submitted by MDEQ satisfies all requirements of this fourth element.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

Comments:

Tables 5 and 6 of the TMDL outline the 475 permitted point source discharges to the Red Run Drain watershed. The discharges include 5 individual permits, 219 COCs under 4 general permits (MIS110000, MIS120006, MIG619000 and MIG250000), and 251 notices of coverage under 1 permit-by-rule. The WWTP discharge contains treated human waste, and the single sample fecal coliform numbers suggest that the discharge could be a possible source of *E. coli* to Red Run Drain at levels that exceed WQS (Figure 12 of the TMDL). The individual permit for the George W. Kuhn CSO authorizes the discharge of sanitary waste via a retention basin during wet weather events. The general permitted discharges are not considered by MDEQ to be significant sources of *E. coli* to the Red Run Drain due to Best Management Practices (BMPs) required in the permit. The remaining permits-by-rule involve earthwork in the watershed and, due to the nature of the permit, are not considered a significant source of *E. coli* to the TMDL watershed. The WLA for each individual NPDES permit, each general permit, and the permit by rule as set in Tables 5, 6 and 7 of the TMDL is equal to 130 *E. coli* per 100 ml as a 30-day average and 300 *E. coli* per 100 ml as a daily average during the recreational season between May 1 and October 31.

EPA finds that the TMDL document submitted by MDEQ satisfies all requirements of this fifth element.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL

Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Comments:

This TMDL uses an implicit MOS because no rate of decay was used. Pathogen organisms ordinarily have a limited capability of surviving outside of their hosts and a rate of decay could be developed. However, applying a rate of decay could result in an allocation that would be greater than the WQS, thus no rate of decay is applied to provide for a greater protection of water quality. The MDEQ has determined that the use of the WQS of 130 *E. coli* per 100 ml as a monthly geometric mean and 300 *E. coli* per 100 ml as a daily geometric mean for the WLA and LA is a more conservative approach than developing an explicit MOS and accounts for the uncertainty in the relationship between pollutant loading and water quality, based on available data and the assumption to not use a rate of decay. Applying the WQS to be met under all flow conditions also adds to the assurance that an explicit MOS is unnecessary.

EPA finds that the TMDL document submitted by MDEQ satisfies all requirements of this sixth element.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).

Comments:

Seasonality in the TMDL is addressed by expressing the TMDL in terms of a total body contact recreation season that is defined as May 1 through October 31 by R 323.1100 of the WQS. It is expected that there is no total body contact during the remainder of the year due to cold weather; however, there is a separate WQS of a maximum of 1000 *E. coli*/100 ml for the partial body contact season. Because this is a concentration-based TMDL, WQS will be met regardless of flow conditions in the applicable season.

EPA finds that the TMDL document submitted by MDEQ satisfies all requirements of this seventh element.

8. Reasonable Assurances

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with “the assumptions and requirements of any available wasteload allocation” in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and

the WLA is based on an assumption that nonpoint source load reductions will occur, EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA's August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comments:

MDEQ identified numerous examples involving reasonable assurance for permitted discharges in the TMDL (Page 8 of the TMDL). These activities include NPDES permit review and upgrades of the Warren WWTP, Long-Term CSO Control Program efforts at the Oakland County George W. Kuhn Retention Basin involving significant storage increase and chlorination of CSO discharges, and sewer separations.

The City of Center Line and the MDEQ have signed an Administrative Consent Order dated August 24, 2001, and most recently amended October 29, 2004, to resolve the SSOs to Lorraine Drain. This agreement contains activities for flow monitoring, negotiations for obtaining additional treatment capacity from the Detroit Water and Sewerage Department, and structural improvements to the sewer system that shall be completed by September 30, 2008. Since signing of the agreement, the number of SSOs has been significantly reduced. The main goal of the agreement is a plan that includes the closure of the SSO by September 30, 2009.

The NPDES stormwater program also issues permits for industrial stormwater dischargers. In addition, numerous municipalities are under NPDES Phase I and Phase II stormwater permits. The Michigan Department of Transportation also operates under a Phase I storm water permit. These permits will serve to reduce and control stormwater, thus reducing pathogen loads to the impaired waterbodies. Many of the activities under the Phase II permits involve elimination of illicit dischargers. Significant activities have been underway for several years in the subwatershed, and are expected to continue into the foreseeable future.

The Red Run Drain has a subwatershed advisory group that consists of representatives from all communities, departments, schools, and organizations that are located in the watershed. Efforts made by this advisory group for the period of October 1, 2004 to September 30, 2005, included holding two community forums to allow residents the opportunity to share ideas on the development of a watershed management plan for the Red Run Drain watershed. The plan is currently being developed and should be ready by November 2006.

EPA finds that the TMDL document submitted by MDEQ adequately addresses this eighth element.

9. Monitoring Plan to Track TMDL Effectiveness

EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comments:

As discussed in the Monitoring Section of the TMDL submittal, long-term monitoring will be conducted by MDEQ as part of the five-year rotating basin monitoring. Further monitoring efforts are discussed in the Reasonable Assurance Activities Section of the TMDL. For example, the Macomb County Health Department (MCHD) conducts weekly *E. coli* monitoring at 11 locations within the Red Run Drain watershed. The MDEQ works with the MCHD to identify *E. coli* sampling locations and share data. The MCPWO is also required to sample outfalls to legally established county drains to locate illicit discharges. Numerous outfalls in the Red Run and Bear Creek watershed were sampled in 2005. Follow-up investigations of the greatest exceedances throughout the county will continue in 2006. When corrective actions have occurred or results indicate that the water body may be meeting the WQS, then MDEQ will conduct sampling at the appropriate frequency (as defined in R 323.1062 and the Numeric Target Section of the TMDL submittal) to determine if the loading capacity is 130 *E. coli* per 100 ml based on a 30-day geometric mean, and 300 *E. coli* per 100 ml as a daily geometric mean maximum.

EPA finds that the TMDL document submitted by MDEQ adequately addresses this ninth element.

10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

Comment:

This TMDL does not contain a formal implementation plan. EPA is not required to, and therefore does not, approve TMDL implementation plans. However, MDEQ did identify some implementation activities that will work toward meeting the WQS for *E. coli*. As discussed under the Reasonable Assurance Activities section (item #8 above), MS4 permits have been issued, and various plans have been implemented and are on-going in the Red Run Drain and Bear Creek.

EPA finds that the TMDL document submitted by MDEQ adequately addresses this tenth element.

11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

Comments:

The availability of the draft TMDL was announced on the MDEQ Calendar on June 26, July 10, and July 24, 2006. The draft TMDL was public noticed from June 26, 2006, to August 2, 2006. A stakeholder meeting was held on July 26, 2006, at MDEQ Southeast District offices in Warren Michigan. Stakeholders were determined by identifying municipalities (i.e., counties, townships, and cities) in the TMDL watershed, and a list of identified stakeholders was provided in the TMDL submittal. Copies of the draft TMDL were available upon request and posted on MDEQ's website. Copies of the draft TMDL were also mailed with the stakeholder meeting invitations and available at the stakeholder meeting. Two public comments was received, and MDEQ responded appropriately to the comments (Enclosure 4 of the TMDL).

EPA finds that the TMDL document submitted by MDEQ satisfies all requirements of this eleventh element.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the water body, and the pollutant(s) of concern.

Comment:

The transmittal letter was dated August 30, 2006, from Richard A. Powers, Chief, Water Bureau, MDEQ, to Jo Lynn Traub, Director, Water Division, Region 5 EPA. The letter stated clearly that this was a final TMDL submittal under Section 303(d) of the CWA. The letter also contains the name of the watershed as it appears on the Michigan 303(d) list, and the pollutant of concern.

EPA finds that the TMDL documents submitted by MDEQ satisfy all requirements of this twelfth element.

13.Conclusion

After a full and complete review, EPA finds that the TMDL for the Red Run Drain and Bear Creek, WBID# 061402A and WBID# 061402B satisfies all of the elements of an approvable TMDL. This approval document is for two water body segments impaired by *E. coli* for a total of two TMDLs addressing a total of two impairments from the 2004 Michigan 303(d) list.

EPA's approval of this TMDL does not extend to those waters that are within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove TMDLs for those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.

<u>Water body</u>	<u>HUC (AU)</u>	<u>Pollutant</u>	<u>Impairments</u>	<u>WBID #</u>
Red Run Drain	4090003	<i>E. coli</i>	Pathogens	061402A
Bear Creek	4090003	<i>E. coli</i>	Pathogens	061402B